

IN THE CLAIMS

Please amend the claims as follows, substituting any amended claim(s) for the corresponding pending claim(s):

1 1. (Currently Amended) A communication receiver that is operable to receive a signal that is
2 transmitted via communication channel, the received signal comprising a training sequence portion and a
3 data portion, the communication receiver comprising:

4 a channel estimation block that is operable to estimate a characteristic of a communication
5 channel; and

6 a channel equalizer block that is operable to calculate a plurality of channel equalizer tap
7 coefficients, the plurality of channel equalizer tap coefficients being used to equalize for any
8 communication channel-induced changes within the received signal; and

9 wherein at least one of the channel estimation block and the channel equalizer block performs
10 repeated adaptation;

11 the channel estimation block being operable to employ repeated adaptation on the training
12 sequence portion and the data portion, the repeated adaptation of the channel estimation block being
13 performed using a plurality of channel estimation cycles; and

14 the channel equalizer block being operable to employ repeated adaptation on the training
15 sequence and the data portion, ~~the repeated adaptation of the channel equalizer block being performed~~
16 ~~using a plurality of channel equalizer cycles wherein the channel equalizer block calculates the plurality~~
17 ~~of equalizer tap coefficients by performing repeated adaptation on the training sequence portion and the~~
18 ~~data portion using a plurality of channel equalizer cycles.~~

Claims 2-3. (Canceled)

1 4. (original) The communication receiver of claim 1, wherein the communication receiver
2 receives, as input, ‘a priori’ information that corresponds to the characteristic of the communication
3 channel.

1 5. (original) The communication receiver of claim 4, wherein the channel estimation block
2 employs the ‘a priori’ information that corresponds to the characteristic of the communication channel to
3 modify an end condition of at least one of the channel estimation cycles.

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1 6. (original) The communication receiver of claim 4, wherein the channel equalizer block
2 employs the 'a priori' information that corresponds to the characteristic of the communication channel to
3 modify an end condition of at least one of the channel equalizer cycles.

1 7. (original) The communication receiver of claim 1, wherein the channel equalizer block
2 comprises a decision feedback equalizer.

1 8. (original) The communication receiver of claim 1, further comprising a buffer; and
2 wherein the communication receiver stores at least one of the training sequence portion and the
3 data portion in the buffer; and

4 the communication receiver retrieves at least one of the training sequence portion and the data
5 portion from the buffer during at least one of a channel estimation cycle and a channel equalizer cycle.

1 9. (original) The communication receiver of claim 1, wherein the plurality of channel estimation
2 cycles comprises a plurality of regions; and

3 wherein the channel estimation block performs region-dependent error handling using repeated
4 adaptation on the training sequence portion and the data portion.

1 10. (original) The communication receiver of claim 9, wherein one region within the plurality of
2 regions comprises a number of iterations, a step size, and a threshold.

1 11. (original) The communication receiver of claim 10, wherein at least one additional region
2 within the plurality of regions comprises the number of iterations and a step size smaller than the step size
3 of the one region.

1 12. (original) The communication receiver of claim 1, wherein the plurality of channel equalizer
2 cycles comprises a plurality of regions; and

3 wherein the channel equalizer block performs region-dependent error handling using repeated
4 adaptation on the training sequence portion and the data portion to calculate the plurality of channel
5 equalizer tap coefficients.

1 13. (original) The communication receiver of claim 12, wherein one region within the plurality of
2 regions comprises a number of iterations, a step size, and a threshold.

1 14. (original) The communication receiver of claim 13, wherein at least one additional region
2 within the plurality of regions comprises the number of iterations and a step size smaller than the step size
3 of the one region.

1 15. (original) The communication receiver of claim 1, wherein the communication receiver
2 comprises a receive block that is contained within a transceiver.

1 16. (original) The communication receiver of claim 1, wherein the communication receiver is
2 contained within at least one of a base station receiver, a mobile receiver, a tower receiver, and a high
3 definition television set top box.

1 17. (Currently Amended) A communication receiver that receives a signal that includes a training
2 sequence portion and a data portion, the communication receiver comprising:

3 a channel estimator;

4 a channel equalizer that is operable to calculate a plurality of channel equalizer tap coefficients,
5 the plurality of channel equalizer tap coefficients being used to equalize for any communication channel-
6 induced changes within the received signal, the channel equalizer operable to be selectively
7 communicatively coupled to the channel estimator; and

8 wherein the communication receiver being selectively operable within a system identification
9 mode and a channel equalizer mode;

10 within the system identification mode, the channel estimator employs repeated adaptation on the
11 received signal to estimate a characteristic of a communication channel and then provides the channel
12 estimate to the channel equalizer, the channel equalizer then performing direct calculation of the plurality
13 of equalizer tap coefficients;

14 within the channel equalizer mode, the channel equalizer employs repeated adaptation on the
15 received signal to calculate the plurality of equalizer tap coefficients and performs region-dependent error
16 handling using repeated adaptation on at least one of the training sequence portion and the data portion;

17 the repeated adaptation of the system identification mode comprises includes a plurality of
18 channel equalizer cycles having a plurality of regions; and

19 the repeated adaptation of the channel equalizer mode comprises a includes the plurality of
20 channel equalizer cycles.

Claim 18. Canceled.

1 19. (Currently Amended) The communication receiver of ~~claim 18~~ claim 17, further comprising a
2 buffer; and

3 wherein the communication receiver stores at least one of the training sequence portion and the
4 data portion in the buffer.

1 20. (original) The communication receiver of claim 19, wherein the channel estimator retrieves at
2 least one of the training sequence portion and the data portion from the buffer during a channel estimation
3 cycle.

1 21. (original) The communication receiver of claim 19, wherein the channel equalizer retrieves at
2 least one of the training sequence portion and the data portion from the buffer during a channel equalizer
3 cycle.

1 22. (Currently Amended) The communication receiver of ~~claim 18~~ claim 17, wherein the plurality
2 of channel estimation cycles comprising a plurality of regions; and

3 wherein the channel estimator performs region-dependent error handling using repeated
4 adaptation on at least one of the training sequence portion and the data portion within the system
5 identification mode.

1 23. (original) The communication receiver of claim 22, wherein one region within the plurality of
2 regions comprises a number of iterations, a step size, and a threshold.

1 24. (original) The communication receiver of claim 23, wherein at least one additional region
2 within the plurality of regions comprises the number of iterations and a step size smaller than the step size
3 of the one region.

Claim 25. (Canceled)

1 26. (Currently Amended) The communication receiver of ~~claim 25~~ Claim 17, wherein one region
2 within the plurality of regions comprises a number of iterations, a step size, and a threshold.

1 27. (original) The communication receiver of claim 26, wherein at least one additional region
2 within the plurality of regions comprises the number of iterations and a step size smaller than the step size
3 of the one region.

1 28. (original) The communication receiver of claim 17, wherein the communication receiver
2 receives, as input, ‘a priori’ information that corresponds to the characteristic of a communication
3 channel, the signal being transmitted to the communication receiver via the communication channel.

1 29. (original) The communication receiver of claim 28, wherein the channel estimator employs
2 the ‘a priori’ information that corresponds to the characteristic of the communication channel to modify
3 an end condition of at least one of the channel estimation cycles within the system identification mode.

1 30. (original) The communication receiver of claim 28, wherein the channel equalizer employs
2 the ‘a priori’ information that corresponds to the characteristic of the communication channel to modify
3 an end condition of at least one of the channel equalizer cycles within the channel equalizer mode.

1 31. (original) The communication receiver of claim 17, wherein the channel equalizer block
2 comprises a decision feedback equalizer.

1 32. (original) The communication receiver of claim 17, wherein the communication receiver
2 comprises a receive block that is contained within a transceiver.

1 33. (original) The communication receiver of claim 17, wherein the communication receiver is
2 contained within at least one of a base station receiver, a mobile receiver, a tower receiver, and a high
3 definition television set top box.

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1 34. (Currently Amended) A communication receiver that receives a signal that ~~comprises~~
2 includes a training sequence portion and a data portion, the communication receiver comprising:
3 a channel estimator;
4 a channel equalizer that is operable to calculate a plurality of channel equalizer tap coefficients,
5 the plurality of channel equalizer tap coefficients being used to equalize for any communication channel-
6 induced changes within the received signal, the channel equalizer operable to be selectively
7 communicatively coupled to the channel estimator; and
8 wherein the channel estimator employs repeated adaptation on the received signal to estimate a
9 characteristic of a communication channel and then provides the channel estimate to the channel
10 equalizer, the channel equalizer then performing direct calculation of the plurality of equalizer tap
11 coefficients based on the channel estimate provided by the channel estimator, wherein the channel
12 estimator performs region-dependent error handling using repeated adaptation on at least one of the
13 training sequence portion and the data portion; and
14 the repeated adaptation performed by the channel estimator ~~comprises~~ includes a plurality of
15 channel estimation cycles having a plurality of regions.

1 35. (original) The communication receiver of claim 34, further comprising a buffer; and
2 wherein the communication receiver stores at least one of the training sequence portion and the
3 data portion in the buffer.

1 36. (original) The communication receiver of claim 35, wherein the channel estimator retrieves at
2 least one of the training sequence portion and the data portion from the buffer during a channel estimation
3 cycle.

Claim 37. (Canceled)

1 38. (Currently Amended) The communication receiver of ~~claim 37~~ claim 34, wherein one region
2 within the plurality of regions comprises a number of iterations, a step size, and a threshold.

1 39. (original) The communication receiver of claim 38, wherein at least one additional region
2 within the plurality of regions comprises the number of iterations and a step size smaller than the step size
3 of the one region.

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1 40. (original) The communication receiver of claim 34, wherein the communication receiver
2 receives, as input, ‘a priori’ information that corresponds to the characteristic of a communication
3 channel, the signal being transmitted to the communication receiver via the communication channel.

1 41. (original) The communication receiver of claim 40, wherein the channel estimator employs
2 the ‘a priori’ information that corresponds to the characteristic of the communication channel to modify
3 an end condition of at least one of the channel estimation cycles.

1 42. (original) The communication receiver of claim 34, wherein the channel equalizer block
2 comprises a decision feedback equalizer.

1 43. (original) The communication receiver of claim 34, wherein the communication receiver
2 comprises a receive block that is contained within a transceiver.

1 44. (original) The communication receiver of claim 34, wherein the communication receiver is
2 contained within at least one of a base station receiver, a mobile receiver, a tower receiver, and a high
3 definition television set top box.

1 45. (Currently Amended) A repeated adaptation communication receiver method, comprising:
2 receiving a signal that is transmitted via a communication channel, the received signal ~~comprising~~
3 includes a training sequence portion and a data portion;

4 selectively estimating a characteristic of a communication channel using repeated adaptation on at
5 least one of the training sequence portion and the data portion, the repeated adaptation of the selective
6 channel estimation being performed using a plurality of channel estimation cycles having a plurality of
7 regions, wherein estimating the characteristic of the channel communication channel includes performing
8 region-dependent error handling using repeated adaptation on the training sequence portion and the data
9 portion; and

10 selectively calculating a plurality of channel equalizer tap coefficients using repeated adaptation
11 on at least one of the training sequence portion and the data portion, the plurality of channel equalizer tap
12 coefficients being used to equalize for any communication channel-induced changes within the received
13 signal.

1 46. (original) The method of claim 45, further comprising:

2 initially estimating the characteristic of the communication channel using the repeated adaptation

3 on the at least one of the training sequence portion and the data portion; and

4 subsequently employing the estimated characteristic of the communication channel to perform

5 direct calculation of the plurality of equalizer tap coefficients.

1 47. (original) The method of claim 45, further comprising receiving, as input, ‘a priori’

2 information that corresponds to the characteristic of the communication channel.

1 48. (original) The method of claim 47, wherein the selective estimating of the characteristic of the

2 communication channel comprises employing the ‘priori’ information that corresponds to the

3 characteristic of the communication channel to modify an end condition of at least one of the channel

4 estimation cycles.

1 49. (original) The method of claim 47, wherein the selectively calculating of the plurality of

2 channel equalizer tap coefficients comprises employing the ‘a priori’ information that corresponds to the

3 characteristic of the communication channel to modify an end condition of at least one of the channel

4 equalizer cycles.

1 50. (original) The method of claim 45, wherein the selectively calculating a plurality of channel

2 equalizer tap coefficients is performed using a decision feedback equalizer.

1 51. (original) The method of claim 45, further comprising:

2 storing the at least one of the training sequence portion and the data portion in a buffer; and

3 retrieving the at least one of the training sequence portion and the data portion from the buffer

4 during at least one of a channel estimation cycle and a channel equalizer cycle.

Claim 52. (Canceled)

1 53. (Currently Amended) The method of ~~claim 52~~ claim 45, wherein one region within the

2 plurality of regions comprises a number of iterations, a step size, and a threshold.

1 54. (original) The method of claim 53, wherein at least one additional region within the plurality

2 of regions comprises the number of iterations and a step size smaller than the step size of the one region.

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1 55. (original) The method of claim 45, wherein the plurality of channel equalizer cycles
2 comprising a plurality of regions; and

3 wherein the selectively calculating of the plurality of channel equalizer tap coefficients comprises
4 region-dependent error handling using repeated adaptation on the training sequence portion and the data
5 portion.

1 56. (original) The method of claim 55, wherein one region within the plurality of regions
2 comprises a number of iterations, a step size, and a threshold.

1 57. (original) The method of claim 56, wherein at least one additional region within the plurality
2 of regions comprises the number of iterations and a step size smaller than the step size of the one region.

1 58. (original) The method of claim 45, wherein the method is performed in a receive block, the
2 receive block is contained within a transceiver.

1 59. (original) The method of claim 45, wherein the method is performed in at least one of a base
2 station receiver, a mobile receiver, a tower receiver, and a high definition television set top box.

1 60. (Currently Amended) A repeated adaptation communication receiver method, comprising:
2 receiving a signal that is transmitted via a communication channel, the received signal ~~comprising~~
3 includes a training sequence portion and a data portion;

4 initially estimating a characteristic of a communication channel using repeated adaptation on the
5 training sequence portion and the data portion, the repeated adaptation of the selective channel estimation
6 being performed using a plurality of channel estimation cycles that include a plurality of regions, wherein
7 estimating the characteristic of the communication channel includes performing region-dependent error
8 handling using repeated adaptation on the training sequence portion and the data portion; and

9 subsequently employing the estimated characteristic of the communication channel to perform
10 direct calculation of a plurality of equalizer tap coefficients, the plurality of equalizer tap coefficients
11 being used to equalize any communication channel-induced changes within the received signal.

1 61. (original) The method of claim 60, further comprising receiving, as input, ‘a priori’
2 information that corresponds to the characteristic of the communication channel.

1 62. (original) The method of claim 61, wherein the selective estimating of the characteristic of the
2 communication channel comprises employing the ‘a priori’ information that corresponds to the
3 characteristic of the communication channel to modify an end condition of at least one of the channel
4 estimation cycles.

1 63. (original) The method of claim 60, wherein direct calculation of the plurality of equalizer tap
2 coefficients being calculated using a decision feedback equalizer.

1 64. (original) The method of claim 60, further comprising:
2 storing at least one of the training sequence portion and the data portion in a buffer; and
3 retrieving at least one of the training sequence portion and the data portion from the buffer during
4 a channel estimation cycle.

Claim 65. (Canceled)

1 66. (Currently Amended) The method of ~~claim 65~~ claim 60, wherein one region within the
2 plurality of regions comprises a number of iterations, a step size, and a threshold.

1 67. (original) The method of claim 66, wherein at least one additional region within the plurality
2 of regions comprises the number of iterations and a step size smaller than the step size of the one region.

1 68. (original) The method of claim 60, wherein the method is performed in a receive block, the
2 receive block is contained within a transceiver.

1 69. (original) The method of claim 60, wherein the method is performed in at least one of a base
2 station receiver, a mobile receiver, a tower receiver, and a high definition television set top box.